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Ago D/A ltr, 29 Apr 1980

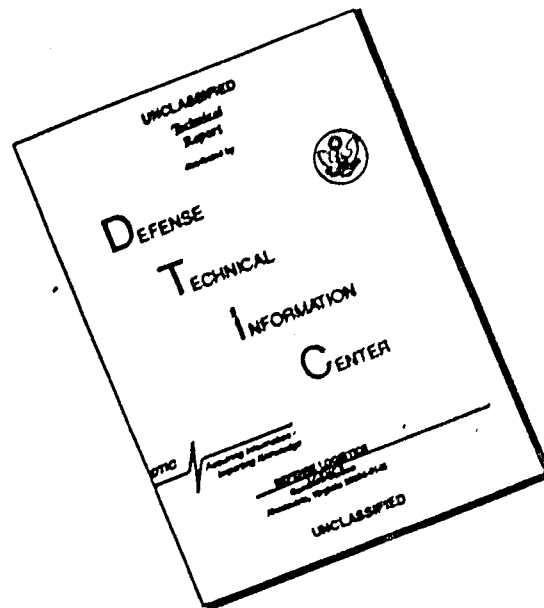
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IN REPLY REFER TO

AGAM-P (M) (9 Oct 67) FOR OT RD 670297

13 October 1967

AD 824477

SUBJECT: Operational Report - Lessons Learned, Headquarters,
87th Engineer Battalion (Const)

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C. A. STANFIEL
Colonel, AGC
Acting The Adjutant General

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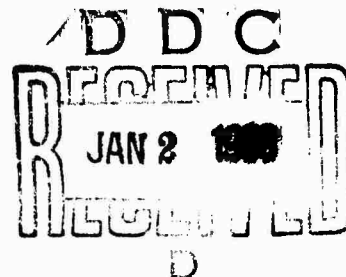
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DEPARTMENT OF THE ARMY
HEADQUARTERS, 87TH ENGINEER BATTALION (CONST)
APO 96312

EGACBB-OP

13 May 1967

SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly
Period Ending 30 April, 1967.

THRU: Commanding Officer
35th Engineer Group (Const)
ATTN: EGA-3
APO 96312

Commanding General
18th Engineer Brigade
APO 96377

Commanding General
USA Engineer Command Vietnam (Prov)
ATTN: AVCC-P&O
APO 96491

Commanding General
United States Army, Vietnam
ATTN: AVHCC-DH
APO 96307

Commander in Chief
United States Army, Pacific
ATTN: GPOP-OT
APO 96568

TO: Assistant Chief of Staff for Force Development
Department of the Army (RCSFOR DA),
Washington, D.C. 20310

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SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 30 April, 1967.

Section I Significant Unit Activities

1. Command Lieutenant Colonel Robert L Moore assumed command of the battalion on 1 March, 1967.

2. Personnel, Administration, Morale, Discipline.

a. There were 32, 13 and 14 Class I, II, and III offenses respectively, during the reporting period which represents a decrease from the previous period. Church attendance and participation in other religious activities remained high.

b. A portion of the beach area along the South China Sea was obtained to provide a convenient recreational area for members of the battalion. Outdoor athletic areas were established and water safety features were installed. One field kitchen is moved to the area each Sunday to provide food.

c. On 30 March, 1967, the battalion was awarded the Meritorious Unit Citation for meritorious service during the period of August 1965, to April 1966. A class on Military Justice was presented by the Engineer Command to Officers of this Battalion. This class has improved the court and pre-trial procedures.

3. Plans, Operations and Training.

a. The battalion performed construction operations a total of 76 days during the period, and conducted training for 64 days.

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b. Three after duty classes were conducted for key Officers and Non-Commissioned Officers in the placement and finishing of concrete. As a result average daily placements rates increased by 125% with a marked increase in quality.

c. The battalion received Clark 290 Tractor Scrapers to replace the 830-M Tractor-Scrapers. Classes, under the auspices of 18th Engineer Brigade, were conducted in operation as well as all echelons of organizational maintenance.

d. By improved management of equipment resources, hard rock production was increased from an average of 250 cu yds per day to an average of 800 cu yds per day.

e. B Company of this unit, completed the Song Mao airfield complex, and provided engineer support for the 101st Airborne Brigade on Operation Furragut then relocated to Phan Rang.

f. The following major construction was accomplished by the battalion during the period:

(1) PX Warehouse Extension: This project involved erecting a standard 40'x140' steel Strand Building to provide additional warehouse space. The standard 40'x100' design was modified by increasing the heights of the columns and wall panels to accommodate large trucks. The frame building was encased in sheet metal siding and roofing. In addition, two steel warehouse doors were fabricated and installed on rollers. A total of 3,710 man hours were expended on this project.

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(2) My Ca Road: 4,200' of roadway was widened from an existing 20' width to 40'. This width included a 24' roadway and two 8' shoulders. The base course consisted of 8" compacted sand cement and was surfaced with a 2 1/2" compacted hot mix asphalt. 16,470 cubic yards of fill were hauled and placed, and 22,587 cubic yards of sand cement were utilized. 1,025 tons of hot mix asphalt were placed on the road. 5,890 man hours were expended in the completion of this project.

(3) Personnel Administration Building: The construction of the Personnel Administration Building started on 24 April 1967. This unit was directed to construct two each 80'x164' wood frame buildings, to include 3,200 square feet of air conditioned space for automatic data processing equipment. To date, 2413 man hours and 575 equipment hours has been expended on this project.

(4) Finance Administration Building: This project consisted of erecting a 14,600 square foot wood frame building. Included in the construction was a 405 square foot reinforced concrete vault. The foundation slab required 380 cu. yds. of concrete. The project is 98% complete. A total of 15,800 man hours were expended on this project during the period.

(5) Marine Maintenance Facility: Work began on this project on 27 March. When completed this project will provide three steel warehouses comprising 56,000 sq. ft. of space; 32,000 sq. ft. of open storage sheds, and 27,000 sq. yds. of hardstand. There is also included 4,900 feet of two-lane surfaced roadway. All concrete foundations have been placed,

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totaling some 3,000 cu. yds. of reinforced concrete, and the steel framework is now being erected. 21,000 man hours were expended on this project during the period.

(6) PX Warehouses: This project will provide a total of four 70'x280' pre-fabricated metal warehouses. Site preparation required the removal of 60,000 cu yds of sand. Two of the buildings are 80% and 83% complete respectively. To date, 1600 cu yds of concrete have been placed. 19,100 man hours were expended on this project.

(7) Pier 1 Expansion: This project will provide 50,000 sq. ft. of reclaimed bay area for future hardstand. To reclaim this area, 250,000 cu. yds. of sand fill are required. During the period, 3,000 man hours and 2,500 equipment hours were expended, and the project is 55% complete.

(8) POL Tank Farm (200,000 bbl): This project was initiated in July 1966 as a joint venture between R K and the U.S. Army. When the reporting period began, the farm was operational and all work completed. However, extensive wind erosion required massive repairs and stabilization to the berms. 10,000 U.S. and 8,000 Vietnamese man hours were expended on this berm stabilization.

(9) Operation Farragut: During this period, B Company placed M8A-1 matting over the 3,500 ft. runway at Song Mao. (Construction progress was included in previous reports.) In addition, six 30'x30' chinook pads, eighty-seven 20'x20' helicopter landing pads, and 116,250 sq. ft of parking apron were overlaid with PSP and M8A1 matting.

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Upon commencement of the operation on 10 February, 1967, B Company reverted to a direct support mission to provide engineer support to the tactical unit. With completion of the operation, Company B convoyed to Phan Rang and established a base camp at that location.

(10) Class 1 Warehouses: This project consisted of erecting and joining two prefabricated steel 40'x100' buildings to make one large warehouse. As the buildings were open-sided, special wall paneling and doors were designed and constructed to provide a closed warehouse. 225 cu. yds. of concrete were placed for the foundation slab. In addition, 5,000 sq. yds. of hardstand for open storage were constructed. 5,400 man hours were expended on this project.

(11) Ammunition Storage Area Interior Roads: This project required that 6 miles of interior roads be stabilized with a sand high in iron and aluminum oxide content. The stabilization was accomplished by placing eight inches of this sand over a shaped and compacted subgrade. The sand was then compacted. During this period, 7,000 man hours and 1,700 equipment hours were expended on this project.

(12) Ammunition Road Construction: During this period, the battalion constructed 12,860 linear feet of two lane Class 50 roadbase leading to the major ammunition area. The roadbase was 40' in width. Asphaltic concrete pavement, 24' wide, was laid over 2,400 ft of this road. The roadbase was constructed as follows: 2,400 ft. consisted of a 10" compacted thickness of sand cement; 10,460 ft. consisted of 12" compacted

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thickness of quarry run rock and crusher tailings. During the period, 64,000 man hours were expended.

(13) Beach Road (Phan Rang): This project required the construction of 2.4 miles of Class 50 roadway over existing rice paddy areas. The topography and drainage patterns were such that 400 ft. of 72" culvert and one bridge (40ft span with steel stringers) were required. The road base has been brought to grade and required 50,000 cu. yds of rock fill to complete. All culvert materials have been emplaced and the bridge is 35% complete. During the period, 46,000 man hours were expended on this project.

4. Logistics and Maintenance

a. During this three month period, the following training was conducted:

(1) 290M Clark Tractor Scraper School was conducted during February and March. A total of 54 mechanics and 71 operators were trained.

(2) A total of six hours of preventive maintenance classes were conducted as a refresher for newly arriving Officers and NCO's.

(3) An hour of Individual instruction in Repair Parts Procedures was given to each Repair Parts Clerk in this Battalion.

b. During the period 1 February thru 30 April, the following

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number of third echelon job orders were processed:

Third echelon job orders.

- (1) Total received 530
- (2) Total completed 458
- (3) Total outstanding 19

c. Over 60% of the repair part requisitions submitted during
this three month period were completed.

- (1) Total requisitions submitted 3,872
- (2) Total requisitions completed 2,405
- (3) Total requisitions outstanding 1,367

d. The status of the Red Ball system is as follows:

- (1) Total requisitions submitted 670
- (2) Total requisitions completed 730
- (3) Total requisitions outstanding 120

e. Through the use of the Red Ball system, this unit was able
to remove 173 items of equipment from deadline.

f. During the last quarterly period, the 87th EBC Dispensary
has supported approximately 1400 military personnel and several hundred
civilians. Units medically serviced, in addition to the battalion, in-
clude the 497th Engr. Co., Navy MIUSII, Alaskan Barge and Transfer Co.,
Vinnell Corporation, and the Delong Corporation. The unit has also con-
ducted weekly MEDCAP missions to Binh Ba, and Binh Hung islands, and, most
recently, the town of Mi Thanh, being the first American medical unit to
visit there. At least 1000 Vietnamese civilians have been treated on
these visits.

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Section II, Lessons Learned

1. Personnel

a. Item; Shortage of Experienced Personnel Within Certain Areas.

Discussion: The battalion has experienced a continuous shortage of personnel in MOS 05B20 (Radio Operator). Thirty-Three (33) personnel are authorized in the battalion, of which, the actual assigned strength has never exceeded fourteen (14), or 42%, of authorized strength. During the next 90 day period, the battalion will lose approximately 6 of the 14 personnel currently present for duty. Loss of personnel in MOS 05B20 limits the battalion communications capability since radio is a primary means of communication due to the geographical dispersion of projects.

Observation: Replacement personnel should be made available in order that the operations of the units are not adversely affected.

b. Item: Non-Receipt of Assignment Instructions:

Discussion: Although assignment instruction sheets are received approximately 60 days prior to departure of personnel, the majority of assignments read "Assignment to Follow" or "Assignment by Separate Communication". Of the 53 EM appearing on the May 67 Assignment Roster, only 7 had firm assignments listed, and of the 93 EM appearing on the June 67 Assignment Roster, only 17 had firm assignments. Current directives permit the reassignment of personnel without assignment instructions to transfer stations within CONUS. Prior to accomplishing this type of reassignment, approval must be obtained from a major command.

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Due to required routing thru higher headquarters difficulty has been experienced in obtaining approval in sufficient time to program the individual for departure by normal DEROS

Observation: More expeditious means of transmitting assignment instructions should be made or delegation of authority should be given to a lower headquarters in order to release individuals prior to DEROS. This would insure a flight allocation, prior to DEROS for the EM and would not create a morale problem.

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Section II Medical

a. Item: Treatment of Venereal Disease.

Discussion: Gonorrhea infections comprise the majority of venereal disease cases seen in the battalion. Many of these are mixed infections, with staphylococcal and streptococcal components. There have also been significant numbers of cases of lues, chancroid, lymphogranuloma venereum, and granuloma inguinale.

Observation: The following treatment procedures were employed:

Treatment of Venereal Disease.

a. Gonorrhea

Day 1- 3 million units Procaine Penicillin

Day 2- 1.5 million units Procaine Penicillin

Day 3- 1.5 million units Procaine Penicillin

b. Mixed gonorrhea-staphylococcal urethritis

Day 1- 4.5 million units Procaine Penicillin
1 gram Streptomycin

Day 2- 1.5 million units Procaine Penicillin BID
15 gram Streptomycin BID

If the infection persists, Tetracycline, 500 mg QID between meals for 10 days is tried. PanAlba (tetracycline 250 mg and novobiocin 125 mg) 2 capsules QID for 5-10 days has also been quite effective. Other drugs used for resistant urethritises have included erythromycin, methicillin and oxacillin. Generally speaking, long term tetracycline has been most effective.

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c. Syphilis

Day 1- 4.8 million units Bi-cillin

Day 7- 2.4 million units Bi-cillin

Serological tests are repeated at 2 weeks, 6 weeks, 3 months, and the patient is instructed to get yearly exams.

d. Lymphogranuloma venereum, granuloma inguinale, and chancroid.

Tetracycline- 500 mg QID for 10 days

b. Item: Aid Station Lab Equipment

Discussion: The procurement of a microscope, centrifuge, blood counting, and gram stain equipment has greatly enhanced the unit's effectiveness in the diagnosis and treatment of various illnesses. Microscopic exams of smears of venereal discharges guide treatments as outlined above, and the ability to perform a CBC at the dispensary has been extremely valuable in the differential diagnosis and judgement of severity of viral and bacterial infections, often enabling us to treat the patient at the dispensary, rather than sending him to a hospital. It is recommended that such equipment be made available through the T.O. and E.

Observation: The use of a microscope, centrifuge, blood counting and gram stain equipment greatly enhances the dispensary's effectiveness.

c. Item: Medical Text Books

Discussion: There is at present no way for a battalion surgeon to procure medical texts through Army channels. However, such texts

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are often necessary, not only for the physician's reference, but also for on the job training of unit personnel. By procuring needed books, the unit's resources and level of personnel training have been raised.

Observation: It is recommended that procedures be established whereby the Army supply a battalion aid station with needed texts.

d. Item: Unit Sanitation

Discussion: It has been noted that the chlorine levels in potable water tanks are lower than normal when the tank is not coated on its inner surface with non-toxic paint. This is probably due to the chlorine reacting with ferrous ions, forming insoluble compounds and gradually lowering the free chlorine level. It is recommended that tanks used for potable water be painted inside with one of the following paints:

(1) Vinyl resin coating system for storage tanks and pipes - 8010-598-5454- 1 gal

(2) Vinylidene resin tank coating-8010-190-3753- 5 gal
8010-290-3752- 5 gal

Observation: Chlorine residual in potable water tanks drops excessively when the tank is not properly coated on its inner surface.

e. Item: Ear and Skin Infections

Discussion: Many cases of otitis externa and staphylococcal skin infections have been seen in the unit between September, 1966 and the present. Significant etiological factors appear to be inadequate bathing facilities and the use of non-potable water for bathing, with its

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significant content of organic debris and bacteria. Support for this hypothesis was gained by the observation that the incidence of these infections declined after the installation of a hot water shower in the battalion. The incidence remains high, however, as the water used is still non-potable even though it is chlorinated.

Observation: The incidence of ear and skin infections declined appreciably after the installation of a hot water shower in the battalion area.

f. Item: Drug Procurement

Discussion: When a needed drug was unobtainable through local channels, requests were made to the following organization:

Defense Personnel Support Center
Director of Medical Material
2800 South 20th Street
Phoenixville, PA
ATTN: Special Purchase Division

Observation: The above unit may be applied to when local channels are unable to supply a needed drug.

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Section III Operations

a. Item: Standards of Concrete Placement and Finishing

Discussion: In the construction of troop cantonments area, rehabilitation of ports, and other general construction support required in a Theater of Operations, Engineer Soldiers are called upon to place large quantities of concrete slabs, foundations, abutments and other structures. Often, through carelessness, inexperience or inadequate training, poor concrete placement habits and techniques developed. If allowed to continue, these careless habits soon become the accepted standard. This is further compounded by the mistaken philosophy that the speed of construction required does not permit quality workmanship. This frequently results in unsatisfactory appearance and there is the possibility of structurally weakened concrete. This battalion is an excellent case in point: A placement yielding 3,500 square feet a day was the standard accepted for a platoon effort. The finish was often very poor, and the slab edges were misaligned and uneven. The limiting factor at this rate was the finishing effort required. (The concrete was placed with a slump of 6½ - 8 inches - this meant that the finishers could not begin their operations until most of the concrete to be placed was put down, and then they had to work long and hard to catch up. This was due to two things: (1) The high slump required an excessive time for the concrete to set enough so that the finishers could begin operations. (2) The finishers

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used knee boards to work from. This meant that by the time the first sections were strong enough to support the boards, subsequent sections were fast approaching final set). The Battalion Commander directed instruction be conducted for Officer and NCO's pointing out the fallacy of ~~too high~~ ^{an excessive} slump and stressing the quality workmanship aspects lacking in these placements. On-site classes in finishing techniques were conducted. The slump of future placements was limited to 4 - 5 1/2 inches which allowed the finishers to "stay up" with the placing crew. Soon, the platoons were placing 4,000 square feet a day of high quality concrete whose finish compared very favorably with accepted civilian standards. With each succeeding placement, more quality concrete was placed and finished, until a maximum of 7,200 square feet was reached by one platoon in one day. The average daily placement for a platoon has leveled off to 6,000 square feet. Quality workmanship not only produced a quality job, but doubled production! The following quality workmanship techniques were developed:

- a. Close control of slump with specified tolerances
- b. Elimination of excessive screeding
- c. Proper vibration methods
- d. Proper bull float techniques and reduction in number of floatings.
- e. Constructing a light, portable "bridge" which spanned the placement, and would provide a support for the finishers - thus

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eliminating the knee boards.

f. Proper finishing techniques.

Observation: Theater of Operations construction standards should conform to accepted industry - wide standards. In addition to providing a better facility - production will increase.

b. Item: Construction Planning and Scheduling

Discussion: Often in the rush to initiate a project, only hasty and cursory job planning was accomplished. This often resulted in an inefficient use of men and equipment. It was found that by taking time, initially, to analyze every facet of the project in detail, and scheduling men and equipment requirements, actual construction time could be reduced by as much as 33%. Additionally, that more men can be gainfully employed on construction projects. By improved planning and job management techniques, this battalion increased its monthly expenditure of construction man - hours from 90,000 to 125,000.

Observation: Time taken to completely analyze, plan, and then schedule men and equipment to support the construction project, is well spent in decreasing the cost and construction time of projects.

c. Item: Dummy Joints in Concrete Slab

Discussion: For a dummy joint in concrete to be effective, the joint must extend in depth at least one third of the slab thickness. For heavy duty slabs, 8 - 12 inches thick, the standard jointer is too shallow. As most construction battalions do not have access to a concrete saw, ^{some} some

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other tool or method to cut these joints must be devised. This battalion found that strips of masonite of required depth, inserted in the concrete, gave a deep, sharply defined joint.

Observation: When concrete saws are not available, masonite strips provide a highly satisfactory joint - making tool.

d. Item: Fragmentation of TO/E Organization.

Discussion: Sometimes, because of shortages in selected skills, there is a tendency to pool these skills in one unit, and assign all missions requiring these particular skills to the gaining unit. The dangers are subtle, but many, such as:

- a. The losing unit is fragmented.
- b. The losing unit loses all capability in the particular skill.
- c. An inherent teamwork existing in TOE units is destroyed because of the loss of members of the team.
- d. Commanders relax their responsibility in such areas as insuring that cross - training is accomplished throughout their unit.
- e. Numerous administrative problems concerning discipline, mail, pay, promotion frequently occur.
- f. A TOE unit becomes incapable of performing its TOE mission.

Observation: Fragmentation of TOE units to pool skills should be avoided like the plague.

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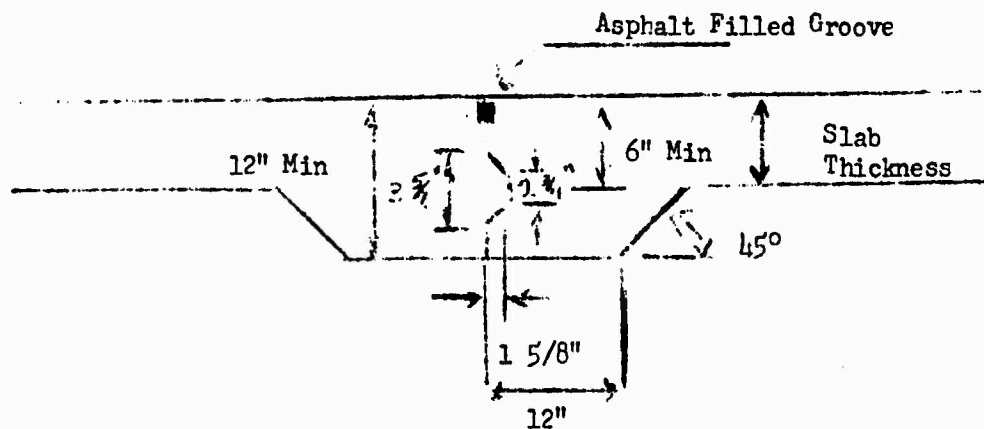
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e. Item: Concrete Construction Joints

Discussion: Many concrete floor slabs of various thicknesses and design criteria were directed to be constructed on short notice.

Observation: A standard design for concrete construction joints was designed and utilized to meet all possible construction criteria.



f. Item: Concrete Placement:

Discussion: A major portion of the concrete production in the Cam Ranh Bay area is accomplished by utilizing a concrete batch plant. The batched concrete is transported to the job site in 5 ton dump trucks. On numerous occasions, dropping concrete into the forms from the bed of a 5 ton dump truck caused the concrete being placed to "splatter" onto already placed and/or finished concrete. This placed an extra requirement on concrete finishers to go back and re-finish sections of concrete slabs.

Observations: An anti-splash shield constructed on a wooden frame

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covered with polyethylene should be utilized. This "splatter" shield prevents the wet concrete from splashing back onto already placed concrete. This method is also helpful in preventing concrete workers from being splattered while concrete is dumped.

g. Item: Concrete Placement Safety:

Discussion: Experience in this command has indicated that when working with cement or concrete, certain precautions should be taken to prevent painful ~~skin~~ chemical burns ^{TO THE SKIN.} These burns occur when cement or concrete, powder or wet, remains in contact with the skin long enough for perspiration to react with the compound.

Observation: The following precautions should be taken:

1. Wear shirts with sleeves rolled down_A and front buttoned.
2. Rubber boots be utilized when working in wet concrete to protect feet and legs.
3. Make available to the job site, a 1:5 or 1:6 solution of water and vinegar (acetic acid). The men must be encouraged to wash off residual concrete using the solution. This vinegar solution is efficiently produced by adding a quart of vinegar to each gallon of water required.

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SUBJECT: Operational Report-Lessons Learned (RCS CSFDR-65) for Quarterly Period Ending 30 April, 1967.

Section IV Maintenance

a. Item: Turbo-Charger elbow on the Clark 290M Tractor.

Discussion: The Turbo-Charger elbow on the Clark 290M tractor keeps cracking due to vibration.

Observation: This was remedied to some extent by welding $\frac{1}{4}$ " steel strips on four sides of the elbow to cut down on vibration, and by taking the thermostat out of the cooling system to lower the heat. Presently we are waiting for a modification to arrive from the factory.

b. Item: Damage to fuel tanks on 290M Tractor.

Discussion: The scraper on the 290M tractor will hit the fuel tanks if the tractor turning radius is sharp and the scraper tilts in the same direction.

Observations: An EIR is presently being submitted for the installation of a warning device (buzzer system) to warn the operator if the tractor-scraper combination is turned too sharply.

c. Item: Cradle pin on 290M Tractor.

Discussion: The 290M tractor cradle has a lubrication fitting which is aligned with a grease hole in the cradle pin. The bushing within the housing will not receive grease should it rotate more than $\frac{3}{8}$ ".

Observations: This problem was alleviated by drilling into the cradle pin bushing from the top end and from the side. With the holes

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SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 30 April, 1967.

drilled in the following manner, (see drawing Tab A) the cradle pin bushing will always receive grease. An EIR is presently being submitted.

d. Item: Fuel inlet line on the 290M Tractor.

Discussion: The fuel inlet line on the Clark 290M tractor that runs from the fuel injector pump to the front cylinder head has been cracking, where it enters the cylinder, due to vibration.

Observation: This problem was solved by installing a 1/8" x 27" (FSN 4730-391-3777) fuel line. An EIR is being submitted.

e. Item: D7E Dozer Hydraulic Lines.

Discussion: The D7E tractor hydraulic lines from the scraper control valve to the hydraulic tanks are breaking at the split flange due to cracking caused by vibration.

Observation: The problem was solved by securing a 1/4" steel plate to the control bracket under the companion seat and to the tractor fender ^{the effect is to} ~~to~~ prevent vibration. An EIR is being submitted. See drawing MEC 2410-214-35P/102 for location of cracks (Tab B).

f. Item: Loading and Transporting Rollers Incorrectly.

Discussion: On numerous occasions, steel wheeled rollers were transported on 25 ton low beds over rough and hilly terrain. Many problems arose due to the improper loading techniques utilized when placing the roller on the low bed.

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SUBJECT: Operational Report-Lessons Learned (RCS GEFOR-65) for Quarterly Period Ending 30 April, 1967.

Observation: The roller should not be loaded and transported with the front wheel towards the cab of the truck, but should be backed on and transported. When transported with the front wheel towards the cab of the truck, the king pin will be bent due to the braking action of the truck. According to TM5-3895-263-15 the front wheel should only be blocked on the sides with the rear wheels blocked on the front and rear.

g. Item: Damage to Quarry Equipment.

Discussion: Equipment such as ~~bucket~~^{steep} loaders, trailer mounted air compressors, D7E dozers, and 5 ton dump trucks are experiencing a high deadline rate when working in our rock quarry. The major problems are due to: 1. poor operator maintenance, and 2. the fact that the TO&E equipment issued by the Army will not withstand the continuous beating it receives from the rocks and rough terrain in our quarry. Some of the problems encountered are as follows:

Observations: 1. Bucket-loader - The bolts work loose causing the front axle to shift back and forth, thus causing hairline cracks on the main frame (See MEC Drawing 3805-200-35P/85). Rubber wheeled ~~bucket~~^{scoop} loader should not be used for loading blast rock. ^{THE} TO&E ~~should~~ be revised to provide Company A with tracked bucket-loaders for quarry operation.

2. 5 ton dump trucks - The tailgates and beds are damaged preventing its use at other locations ^{for} ~~such as~~ hauling asphalt and concrete.

3. The undercarriages of the air compressors become damaged when milled across the rough terrain due to operator's neglect and poor judgement.

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SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 30 April, 1967.

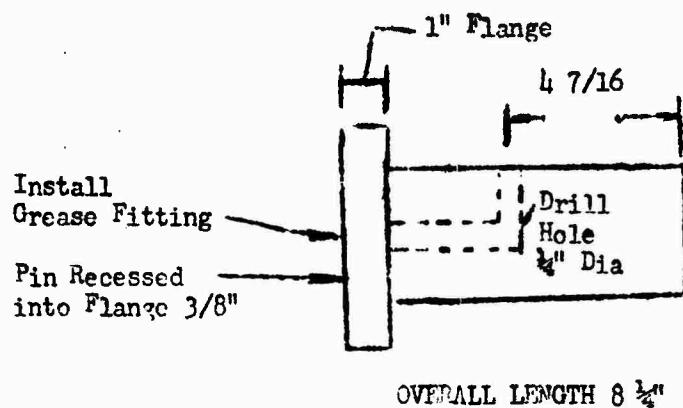
4. The D7E Tractor push arms are developing hairline cracks due to pushing boulders in quarry operations. The cracks occur on the push arms where the diagonal brace connects to the push arm. The diagonal brace is also splitting from the adjusting eye end. Example: See drawings MEC 2410-214-35P/114 and MEC 2410-214-35P/113. The D7E Tractor does not appear to be a large enough tractor for quarry operations. The larger D8 Tractor would be utilized for this purpose.

h. Item: Engineer Maintenance Float

Discussion: The inability of General Support Maintenance organizations to provide maintenance float items adversely effects the Engineer mission. The Cam Ranh Bay Depot presently has dozens of D7E Tractors stored in the depot, while this organization has had a D7E deadlined for 47 days for parts. There is no apparent reason for General Support units to fail to comply with current directives on maintenance float. An effective maintenance float system could reduce down time of engineer equipment by 33 per cent.

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CRADLE PIN



BUSHING HOUSING

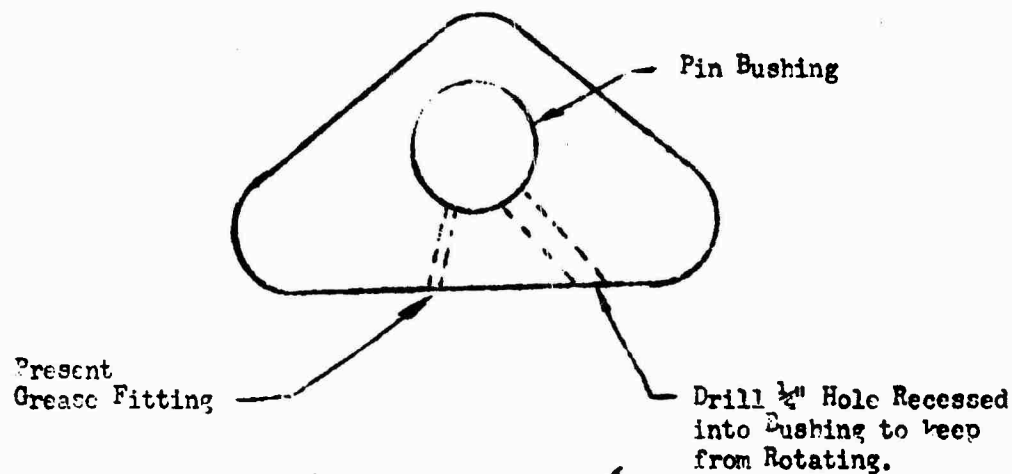
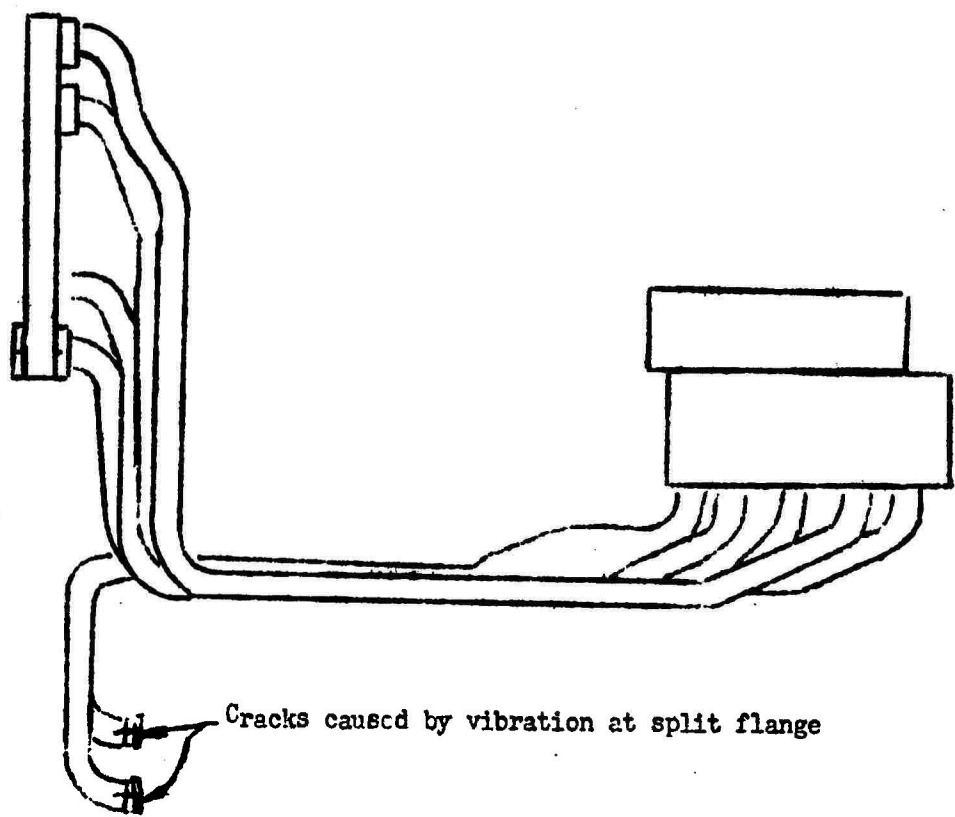


FIGURE A



Cracks caused by vibration at split flange

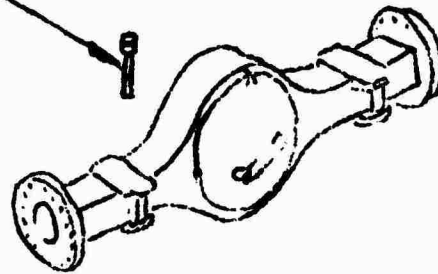
MEC 2410-214-35P/102

FIGURE B

BUCKER LOADER

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These screws work loose
causing main frame to
crack.



8 FRONT AXLE

AXLE HOISTING

DEC 3805-200-35P/85

FIGURE C

Once this crack occurs (A) the threads (B) are stripping on the adjusting eye and causing the diagonal brace to split (shown in blue).

D7 E DOZER

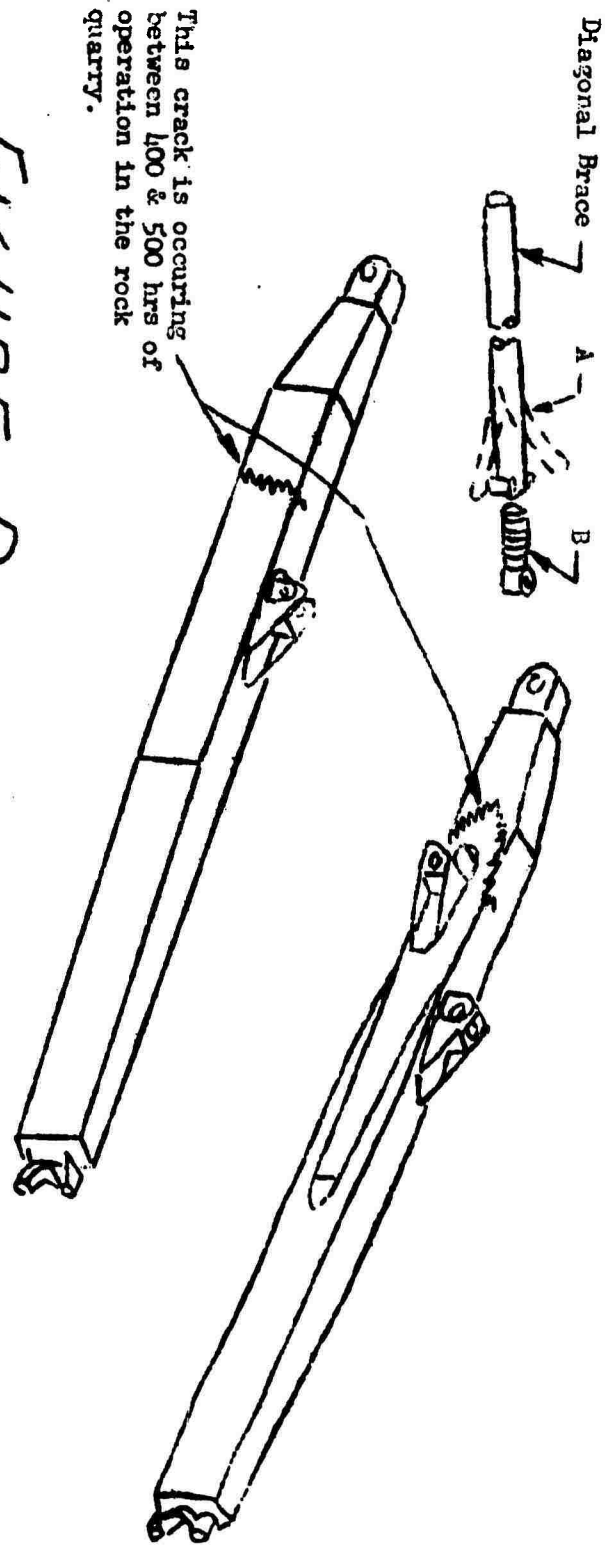
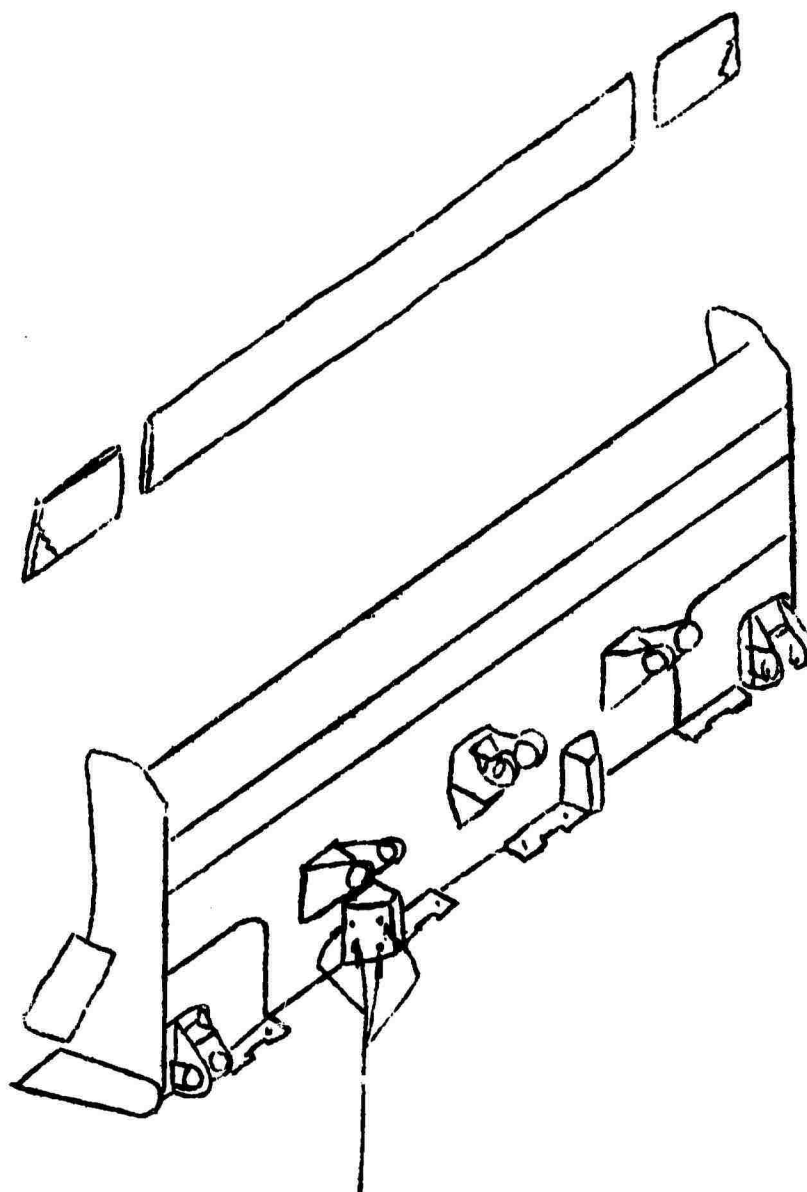


FIGURE D

HEC 2410-24-35P/11L

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D7 E DOZER



Once the diagonal brace splits
these holes elongate and the
bolts fail (see drawing MEC
2410-214-35P/114).

MEC 2410-214-35P/113

FIGURE E

EGACBB-OP

SUBJECT: Operational Report-LESSONS Learned (RCS CSFOR-65) for Quarterly Period Ending 30 April, 1967.

Section V Logistics

a. Item: Construction Materials Requisition Lead Time.

Discussion: AR735-35 sets forth time periods in which items requisitioned at set priorities might reasonably be anticipated to be in the hands of the requisitioner. Operations channels throughout the command should keep those time frames in mind when assigning project starting and completion dates so as to avoid undue strain on the supply system. It is recognized that the in country supply system already has its problems and short notice on material procurement certainly compounds those problems.

Observation: Whenever practicable, a minimum of 30 days should be allowed from S-4 receipt of approved Bill of Material until start of construction. In order to expedite material procurement for rush materials procurement (fifteen days or less) one of the two following solutions would speed up procurement.

(1) Construction Group liaison personnel should be sent to depots to locate, identify (as necessary) and procure these materials.

(2) Individual Battalion representatives be granted access to Depot assets to locate, identify (as necessary) and procure these materials or locate and recommend suitable substitute items.

b. Item: Identification of Construction Material.

Discussion: There are several methods which a construction unit has for identifying Federal Stock Numbers of Construction Items. These

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are: (1) DA Publications, Supply catalogues: A quick glance at C5975-IL-AU, dated November, 1965 will show that these publications are not printed in enough detail for a construction unit to identify sufficient electrical hardware to complete a facility system. For example, building electrical service entrance items normally required for an entrance are: entrance cap, conduit outlet, locknut, bushing and conduit. All these items appear in the referenced IL; however, it takes an individual with broad knowledge in both electrical hardware and supply catalogues before the correct items could be identified. (2) TM5-301, 5-302 and 5-303: These publications were made for theater of operations construction and are excellent; however, many current construction drawings do not follow those set forth in these T.M.'s and many of the federal stock numbers in those manuals are out-dated (to get current FSN's requires that reference be made to supply catalogues). (3) MCA design list: This is a Brigade publication and an alternate solution to the problem; however, it does not provide for the range of materials required. To be specific, the example made above will be used here, an electrical service entrance. Items marked X are those appearing in the MCA design list - no completed service entrance can be installed; however, this list provides one of the simplest methods for materials identification.

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SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 30 April, 1967.

NORMAL	ENTRANCE CAPS	CONDUIT OUTLET	CONDUIT LOCKNUT	BUSHING
--------	---------------	----------------	-----------------	---------

$\frac{1}{2}$				
$\frac{3}{4}$			X	
1				
$1\frac{1}{4}$				
$1\frac{1}{2}$	X			

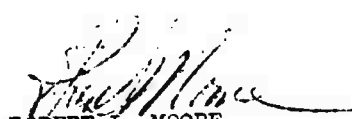
Observation: There are several solutions to the problems posed by the publications described above. Two recommended solutions are: (1) TM5-301, 302, and 303 be used for standard designs within the command with minimum deviation therefrom; further, that II and IV supply points compute their ASL's and stock accordingly. This would enable constructing units and II and IV supply activities to "Speak the Same Language". (2) That an MCA Design List be published with sufficient range and types of materials to complete facilities systems for T.O.; again II and IV supply points should stock accordingly.

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EGACBB-OP

SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly
Period Ending 30 April, 1967.

Observations: Maintenance Float for Engineer Equipment is non-existent.

Section III, Commanders Comments: None


ROBERT L. MOORE
LTC, CE
Commanding

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ECA-3 (13 May 1967)

1st Ind

SUBJECT: Operational Report - Lessons Learned (RCS CSFOR-65) for Quarterly
Period Ending 31 April 1967, 87th Engineer Battalion (Construction)

HEADQUARTERS, 35TH ENGINEER GROUP (CONSTRUCTION), APO 96312, 25 May 1967

THRU: Commanding General
18th Engineer Brigade
APO 96377

THRU: Commanding General
U.S. Army Engineer Command (Prov)
ATTN: AVCS-P&O
APO 96491

THRU: Commanding General
U.S. Army, Vietnam
ATTN: AVCGH-DH
APO 96307

THRU: Commander in Chief
U.S. Army Pacific
ATTN: GPOP-OP
APO 96588

TO: Assistant Chief of Staff for Force Development
Department of the Army (ACSFOR-DA)
Washington, D.C. 20310

This report adequately covers the major activities of the 87th Engineer Battalion (Construction). The comments and recommendations are generally concurred in and the following additional comments are furnished.

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ZGA-3

25 May 1967

SUBJECT: Operational Report - Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 31 April 1967, 87th Engineer Battalion (Construction)


a. Reference Section II, paragraph 1a. Shortage of experienced personnel within certain areas: Shortage of communications personnel has been a problem throughout the 35th Engineer Group. Increasing the number of replacements and the number of personnel attending communications schools would help to alleviate this problem.

b. Reference Section II, paragraph 1b. Non-receipt of assignment instructions: At present this Headquarters has initiated a reporting system to identify individuals who have not received assignment instructions 60 days prior to DEPOS. This will eliminate those few cases overlooked at Group and Battalion levels. A more vigorous program is needed at higher echelons to allow personnel who are rotating time to plan, organize, and make decisions regarding their families. Continued short notification could result in a serious morale problem.

c. Reference Section III, paragraph d. Fragmentation of TO&E organization: Shortage of electricians in the 35th Engineer Group prompted a pooling of electricians into a Group Electrical Team. The purpose was to train capable unskilled personnel to be electricians, and at the same time perform useful work. The results of this training as compared to problems evolved caused discontinuation of the team. A more practical method to solve shortages in critical skills is to increase the output of MCS producing schools in CONUS. Additional training in more sophisticated phases of electrical and plumbing installations would greatly benefit construction units in the theater of operations.

d. Reference Section IV, paragraph g. Damage to quarry equipment, observations subparagraph 1: The TO&E for Company A of a construction Battalion can be modified by MTO&E action. The 87th Engineer Battalion will be notified to submit desired modifications.

e. Reference Section IV, paragraph h. Engineer maintenance float: This Headquarters heartily concurs with the requirement for a maintenance float. Such a float would greatly reduce down time for many items of construction equipment. This Headquarters strongly recommends that 1st Logistical Command expedite the establishment of a maintenance float.


G. H. NEWMAN
Colonel, CE
Commanding

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AVBC-C (13 May 67) 2nd Ind Cpt Mills/cky/DBT-163
 SUBJECT: Operational Report - Lessons Learned (RCS CSFOR-65) for Quarterly
 Period Ending 30 April 1967

Headquarters, 18th Engineer Brigade, APO US Forces 96377

TO: Commanding General, U.S. Army Engineer Command, Vietnam (Prov)
 ATTN: AVCC-P & O, APO US Forces 96491

1. This headquarters has reviewed the subject report for the period ending 30 April 1967 submitted by the 87th Engineer Battalion (Construction), as indorsed by Headquarters, 35th Engineer Group (Construction) and considers it an adequate description of unit activities and accomplishments.

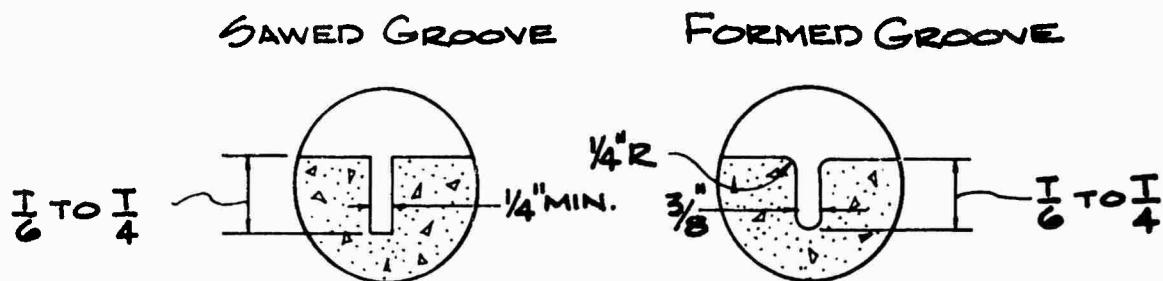
2. The headquarters concurs with comments and observations of the battalion commander, as indorsed, with the following additional comments:

a. Page 8, paragraph 1.b., Item: Non-receipt of Assignment Instructions - the situations involving "Assignment to Follow" instructions are a command wide problem and has been discussed with representatives of the AG, U.S. Army, Vietnam. They are well aware of this problem and are working on a system to insure that individuals listed as "Assignment to Follow" will receive assignment instructions at the earliest possible date. An improvement in the situation is expected during the next quarter.

b. Page 14, Operations, paragraph a., Item: Standards of Concrete Placement and Finishing - Concur; recommend slumps for slabs, beams, and reinforced walls range from 3" - 6" in lieu of 4" - 5½".

c. Page 16, paragraph c., Item: Dummy joints in concrete slabs - the dummy joint can be effective as a contraction joint if the cut depth is 1/4 - 1/6th the slab thickness. Two common contraction joints are the sawed and formed grooves. The sawed joint consists of a saw cut 1/4 in. in width and 1/4 - 1/6 the slab depth. If masonite is used as an imprint or form device, it should be oiled to leave a clean cut in the void and be of proper width and depth to provide a weakened plane.

Examples of these joints are:



NOT TO SCALE

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AVBC-C

SUBJECT: Operational Report - Lessons Learned (RCS CSFOR-65) for Quarterly Period Ending 30 April 1967

d. Page 18, paragraph e., Item: Concrete Construction Joints - standard design for concrete construction joints are usable for longitudinal ones, but are not as acceptable for transverse joints, which should include dowels. Common construction practice for transverse joints is:

<u>Pavement thickness</u>	<u>Dowels</u> minimum length	<u>(Round)</u> maximum spacing	<u>Type Dowel</u>
Less than 8 in.	16 in.	12 in.	3/4" ϕ Bar
8-11 in.	16 in.	12 in.	1" ϕ Bar
12 - 15 in.	20 in.	15 in.	1 1/4" ϕ Bar (or) 1" St. Pipe

e. Page 18, paragraph f., Item: Concrete Placement - The "splatter" shield appears to segregate the concrete. A receiving hopper with a free fall of less than five (5) feet or a chute to the placement location will preclude or reduce "splatter".

f. Page 19, paragraph g., Item: Concrete Placement Safety - If available, elbow length rubber gloves should be used to protect personnel, especially the vibrator operator.



C. M. DUKE
Brigadier General, USA
Commanding

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AVCC-P&O (13 May 67) 3d Ind CPT Hubbard/ccb/BH 404
SUBJECT: Operational Report-Lessons Learned (RCS CSFOR-65) for Quarterly
Period Ending 30 April 1967

HEADQUARTERS, UNITED STATES ARMY ENGINEER COMMAND
VIETNAM (PROV), APO 96491 14 JUN 1967

TO: Commanding General, United States Army, Vietnam, ATTN: AVHCC-DH,
APO 96307

1. The subject report, submitted by the 87th Engineer Battalion (Const), has been reviewed by this headquarters and is considered adequate.

2. The comments made by the submitting and Indorsing commanders have been reviewed and this headquarters concurs, subject to the following added comments:

a. Section II, paragraph 1a, page 8 and paragraph a, 1st Indorsement. Although there is a Command wide shortage of MOS 05B20s, this unit is slightly below other units in the Command. This headquarters will begin assigning a larger percentage of 05B20s to the 18th Engineer Brigade for assignment to this unit.

b. Section II, paragraph b, page 11, ITEM: Aid Station Lab Equipment. In many instances such equipment as microscope, centrifuge, blood counting and gram stain reagents will considerably enhance the effectiveness of a battalion aid station, especially in those instances where a central lab facility is not conveniently located. The unit will be directed to submit TDA action for these items.

c. Section II, paragraph c, page 11, ITEM: Medical Text Books. The USAECV(P) Surgeon recently circulated a USARV Surgeons message re: procurement of text books and periodical medical journals. Once the requests are forwarded, the selected material will be sent to the respective battalions.

d. Section II, paragraph d, page 12, ITEM: Unit Sanitation. This headquarters has taken action to procure non-toxic paint for coating insides of water storage tanks. As soon as the tank coating material is available, tanks will be coated as they are constructed. 1st Logistical Command R&U units will coat existing tanks when they are scheduled for cleaning.

e. Section IV, paragraph h, page 23 and paragraph e, 1st Indorsement, ITEM: Engineer Maintenance Float. Command letters have been forwarded to USARV and 1st Logistical Command on this subject.

f. Section V, paragraph a & b, page 24, ITEM: Construction Materials. This headquarters is working toward standard designs, with matching BOM's and appropriate coordination with 1st Logistical Command. Depot records are being improved and should now more accurately reflect status of construction materials.

FOR THE COMMANDER:

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RICHARD J. DUCOTE
Colonel, CE
Chief of Staff

USARV, ATTN: AVHCC-DH

AVHGC-DST (13 May 67) 4th Ind
SUBJECT: Operational Report-Lessons Learned for the Period Ending
30 April 1967 (RCS CSFOR-65) (U)

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HEADQUARTERS, UNITED STATES ARMY VIETNAM, APO San Francisco 96307 14 JUL 1967

TO: Commander in Chief, United States Army, Pacific, ATTN: GPOP-OT,
APO 96558

1. This headquarters has reviewed the Operational Report-Lessons Learned for the period ending 30 April 1967 from Headquarters, 87th Engineer Battalion (CONST), as indorsed.

2. Pertinent comments follow:

a. Reference item concerning shortage of experienced personnel within certain areas, page 8; paragraph a, 1st indorsement; and paragraph 2a, 3d Indorsement. Concur. A shortage of MOS 05B exists command-wide and available assets are allocated on an equitable basis. A factor causing this shortage has been the arrival in-country of units which were short radio operators. A failure to initiate immediate requisitions aggravated the situation further. Subsequently, however, requisitions were submitted and the Engineer Command is now projected to be at 100% of authorized 05B's by October 1967. The action outlined by the Commanding General, Engineer Command, in paragraph 2a, 3d Indorsement will help to effect a better balance in the interim period.

b. Reference item concerning non-receipt of assignment instructions, page 8; paragraph b, 1st Indorsement; and paragraph 2a, 2d Indorsement; The return of personnel to CONUS pending receipt of assignment instructions has not been delegated. The purpose of this centralization of authority is to provide control. Further, this headquarters endeavors to obtain assignment instructions for all members leaving the command. Returning a soldier to CONUS without assignment instructions is done only after all other avenues have been exhausted. In many instances, assignment instructions had been received and distributed by this headquarters but not received by the subordinate command. Without centralized control, these individuals, who had valid assignment instructions, would be returned as having no assignment.

c. Reference item concerning medical text books, page 25, and paragraph 2c 3d Indorsement; On 4 May 1967, UNCIAS message AVHGD-SP 29594, subject; Professional Books and Journals, was dispatched to Army Commands. This message defines the necessary procedures required to obtain professional books and journals.

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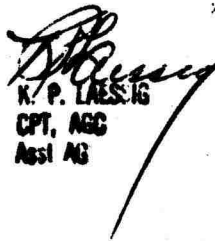
AVNCC-DST (13 May 67)

4th Ind

SUBJECT: Operational Report-Lessons Learned for the Period Ending
30 April 1967 (RCS 05FCR-45)

c. Reference item concerning on-line maintenance float, 10 e 10;
paragraph e, 1st indorsement; and paragraph 1e, 1st indorsement; Concord.
The D/E standardization program at CMA is complete. The authorization,
maintenance float, equipment pool and depot stock are filled.

FOR THE COMMANDER:


K. P. LAESSIG
CPT, AGC
Asst AG

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GPOP-DT(13 May 67)

5th Ind

SUBJECT: Operational Report for the Quarterly Period Ending 30 April 1967
from HQ, 87th Engr Bn (Const) (RCS CSFOR-65)

HQ, US ARMY, PACIFIC, APO San Francisco 96558 2 OCT 1967

TO: Assistant Chief of Staff for Force Development, Department of the
Army, Washington, D. C. 20310

This headquarters has evaluated subject report and forwarding
indorsements and concurs in the report as indorsed.

FOR THE COMMANDER IN CHIEF:



K. F. OSBOURN
MAJ, AGC
Asst AG